

- 1     1.     A wireless audio transmission and reception system comprising"
- 2                     a first encoder to receive an analog signal, to digitize said analog
- 3                     signal, and to compress the digitized analog signal using MP-3
- 4                     compression;
- 5                     a modulator in communication with the first encoder to receive the
- 6                     compressed digitized analog signal and to modulate a carrier
- 7                     frequency with the compressed digitized analog signal;
- 8                     a transmitter in communication with the modulated carrier signal to
- 9                     transfer the modulated carrier signal wirelessly;
- 10                    a receiver to receive the modulated carrier signal;
- 11                    a demodulator in communication with the receiver to extract the
- 12                    compressed digitized analog signal from the modulated carrier
- 13                    signal; and
- 14                    a first decoder in communication with the demodulator to
- 15                    decompress the compressed digitized analog signal using MP-3
- 16                    decompression and to convert said digitized analog signal to a
- 17                    reproduction of the analog signal.

- 1 2. The system of claim 1 further comprising a frame formatter in  
2 communication between the first encoder and the modulator to divide the  
3 compressed digitized analog signal into packets, placing synchronization  
4 patterns at a beginning of each packet, assembling a number of packets  
5 into a frame; and placing an end-of-frame pattern at an end of said frame.
- 1 3. The system of claim 2 further comprising a bit-stuffing circuit in  
2 communication between the frame formatter and the modulator to insert  
3 bits into any frame having insufficient transitions, whereby said insufficient  
4 transitions cause errors in receiving the compressed digitized analog  
5 signal.
- 1 4. The system of claim 3 further comprising a second encoder to encode the  
2 frames of the compressed digitized analog signal to a non-return-to-zero  
3 invert-on-zeros (NRZI) coding.
- 1 5. The system of claim 1 further comprising a second decoder placed in  
2 communication between the demodulator and the first decoder to restore  
3 a NRZI encoded, compressed digitized analog signal to the compressed  
4 digitized analog signal.
- 1 6. The system of claim 5 further comprising a bit-extractor circuit in  
2 communication between the second decoder and the first decoder to  
3 remove bits inserted into the compressed digitized analog signal to restore  
4 original transitions of the compressed digitized analog signal.

1 7. The system of claim 1 further comprising a frame remover in  
2 communication between the demodulator and the first decoder to remove  
3 synchronization patterns from a beginning of each packet of the  
4 compressed digitized analog signals and end-of-frame patterns from an  
5 end of each frame of packets of the compressed digitized analog signals.

1 8. The system of claim 1 wherein the carrier frequency is at least 900 MHz.

1 9. The system of claim 1 wherein a compression ratio of the digitized analog  
2 signal to the compressed digitized analog signal is from approximately 8:1  
3 to approximately 96:1 and is determined by a quality of audio reproduction  
4 of the analog signal

1 10. A wireless audio transmitter system comprising"  
2 a first encoder to receive an analog signal, to digitize said analog  
3 signal, and to compress the digitized analog signal using MP-3  
4 compression;  
5 a modulator in communication with the first encoder to receive the  
6 compressed digitized analog signal and to modulate a carrier  
7 frequency with the compressed digitized analog signal; and  
8 a transmitter in communication with the modulated carrier signal to  
9 transfer the modulated carrier signal wirelessly.

1 11. The system of claim 10 further comprising a frame formatter in  
2 communication between the first encoder and the modulator to divide the  
3 compressed digitized analog signal into packets, placing synchronization  
4 patterns at a beginning of each packet, assembling a number of the  
5 packets to form a frame and placing an end-of-frame pattern at an end of  
6 said frame.

1 12. The system of claim 11 further comprising a bit-stuffing circuit in  
2 communication between the frame formatter and the modulator to insert  
3 bits into any frame having insufficient transitions, whereby said insufficient  
4 transitions cause errors in receiving the compressed digitized analog  
5 signal.

1 13. The system of claim 12 further comprising a second encoder to encode  
2 the frames of the compressed digitized analog signal to a non-return-to-  
3 zero invert-on-zeros (NRZI) coding.

1 14. The system of claim 10 wherein the carrier frequency is at least 900 MHz.

1 15. The system of claim 10 wherein a compression ratio of the digitized  
2 analog signal to the compressed digitized analog signal is from  
3 approximately 8:1 to approximately 96:1 and is determined by a quality of  
4 audio reproduction of the analog signal

5 16. A wireless audio receiver system comprising"

6 a receiver to receive a modulated carrier signal;

7 a demodulator in communication with the receiver to extract a

8 compressed digitized analog signal from the modulated carrier  
9 signal;

10 a first decoder in communication with the demodulator to

11 decompress the compressed digitized analog signal using MP-3

12 decompression and to convert said digitized analog signal to a

13 reproduction of an analog signal.

1 17. The system of claim 16 further comprising a second decoder placed in  
2 communication between the demodulator and the first decoder to restore  
3 a NRZI encoded, compressed digitized analog signal to the compressed  
4 digitized analog signal.

1 18. The system of claim 17 further comprising a bit-extractor circuit in  
2 communication between the second decoder and the first decoder to  
3 remove bits inserted into the compressed digitized analog signal to restore  
4 original transitions of the compressed digitized analog signal.

1 19. The system of claim 16 further comprising a frame remover in  
2 communication between the demodulator and the first decoder to remove  
3 synchronization patterns from a beginning of each packet of the  
4 compressed digitized analog signals and end-of-frame patterns from an  
5 end of a frame of packets of the compressed digitized analog signals.

1 20. The system of claim 16 wherein the carrier frequency is at least 900 MHz.

1 21. The system of claim 16 wherein a compression ratio of the digitized  
2 analog signal to the compressed digitized analog signal is from  
3 approximately 8:1 to approximately 96:1 and is determined by a desired  
4 quality of audio reproduction of the analog signal.

1 22. A method for wireless transmission of an analog signal comprising the  
2 steps of:

3 acquiring the analog signal;

4 digitizing said analog signal;

5 compressing the digitized analog signal according to an MP-3  
6 encoding algorithm;

7 modulating a carrier signal with the compressed digitized analog  
8 signal; and

9 transmitting said modulated carrier signal;

10 receiving said modulated carrier signal;

11 demodulating said modulated carrier signal to extracted the  
12 compressed digitized analog signal;

13 decompressing the compressed digitized analog signal according  
14 to an MP-3 decoding algorithm; and  
15 converting the digitized analog signal to a reproduced analog  
16 signal.

1 23. The method of claim 22 further comprising the step of forming frames of  
2 the compressed digitized analog signal by the steps of:

3 assembling a plurality of bytes of the compressed digitized analog  
4 signal to create packets  
5 placing a synchronization pattern at a beginning of each packet;  
6 assembling a plurality of said packets to form frames; and  
7 placing an end-of-frame pattern at an end of each frame.

1 24. The method of claim 23 further comprising the step of:

2 inserting additional bits within any frame having insufficient  
3 transitions, whereby said insufficient transitions cause errors in  
4 receiving the compressed digitized analog signal.

1 25. The method of claim 27 further comprising the step of:

2 encoding the compressed digitized analog signal to an NRZI  
3 format.

1 26. The method of claim 22 further comprising the step of:

2 decoding an NRZI encoded, compressed, and digitized analog  
3 signal to restore the compressed digitized analog signal.

1 27. The method of claim 22 further comprising the step of:

2 extracting bits inserted to the compressed digitized analog signal to  
3 restore original transitions of the compressed digitized analog  
4 signal.

1 28. The method of claim 22 further comprising the step of:

2 removing frames from the compressed digitized analog signal by  
3 removing synchronization patterns from a beginning of each  
4 packet; and  
5 removing an end-of-frame pattern from each from an end of  
6 each frame.

1 29. The method of claim 22 wherein the carrier signal is at least 900 MHz.

1 30. The method of claim 22 wherein a compression ratio of the digitized  
2 analog signal to the compressed digitized analog signal is from  
3 approximately 8:1 to approximately 96:1 and is determined by a desired  
4 quality of audio reproduction of the analog signal.

5